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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,233	07/11/2003	Toshiaki Hirano	041514-5395	2330
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EXAMINER				
LIN, JAMES				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,233

Applicant(s)

HIRANO ET AL.

Examiner

Jimmy Lin

Art Unit

1792

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 24-27, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21, 22, 24-27, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/19/2008 has been entered.

Specification

2. The amendment to the specification filed 5/19/2008 is being entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-22 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (WO 02/19368; references made are to the English equivalent U.S. Publication No. 2004/0075388) in view of Smith (WO 01/31081).

Miyashita discloses a method of making a PDP (abstract), wherein a MgO protection film 16 having (111) alignment is formed on the PDP substrate [0064].

Miyashita teaches that the film can be formed via a vacuum deposition method [0080], but does not explicitly teach (a) feeding the substrate along a passage and (b) heating and evaporating a plurality of evaporation sources to form the protection film such that at least one of the evaporation sources is located outside of the display area of the PDP. However, Smith teaches a method of forming a film via vacuum deposition (abstract). A plurality of point sources 46 can be arranged in a linear array (pg. 12, lines 23-29). At least one of the evaporation sources is located beyond the edge of the substrate 54 (Fig. 9). The substrate is moved at a

constant velocity v in a first direction during deposition (pg. 15, lines 6-9). The linear design of the evaporation source helps to form a uniform film all the way to the very edges of the substrate (paragraph bridging pg. 16-17). Accordingly, Miyashita teaches the need to form an MgO film having uniform thickness [0142]. Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time of invention to have fed a PDP substrate along a passage such that at least one of the evaporation sources is positioned out of the display area of Miyashita with a reasonable expectation of success. One would have been motivated to do so in order to have formed the protection film with greater uniformity.

Smith does not explicitly teach a first line and a second line forming an angle equal to or smaller than 80 degrees, wherein the first line and the second line are respectively defined as a line connecting at least one of the evaporation sources located outside of the display area to a point on the display area closest to the evaporation source, and a line extending from the evaporation source in a direction parallel to a width of the substrate. However, Smith does teach that uniformity of the layer is best achieved when placing a deposition source beyond the deposition area (pg. 17, lines 1-5). Smith provides an example of a substrate having a length of 12 in. and a vapor source having a length of 15 in. (pg. 10, lines 18-22). The vapor source in this case extends 1.5 in. beyond the substrate on both sides. The throw distance between the substrate and the vapor source can be less than 12 in. (pg. 17, lines 23-27). The angle can be calculated in the following manner:

$$\theta = \tan^{-1} (d_1/d_2)$$

$$\theta = \tan^{-1} (12 \text{ in.} / 1.5 \text{ in.})$$

$$\theta = 82.875^\circ$$

Any throw distance less than 12 in. will result in an angle smaller than 82.875°. Thus, Smith reasonably suggests an angle between the first line and the second line as claimed to be less than 82.875°, which fully encompasses the claimed 80° or less.

Additionally, one of ordinary skill in the art would have expected any angle formed by the first and second line to have achieved the advantage of forming a uniform layer, so long as a deposition source is placed beyond the deposition area and the throw distance is less than 12 in., as suggested by Smith. Accordingly, it would have been obvious to one of ordinary skill in the

art at the time of invention to have placed a deposition source beyond the deposition area such that the first and second line form any angle in the method of Miyashita and Smith, including an angle of the claimed range, with a reasonable expectation of success and with the expectation of similar results.

Claim 22: The combination of Miyashita and Smith would necessarily produce a MgO at the edge point having a reduction of less than 15% of the maximum intensity.

Claim 29: The references as a whole suggest that a line extending from at least one of the evaporation sources in a direction toward the substrate and perpendicular to the first direction intersects a portion of the substrate outside of the display area (Fig. 9 of Smith).

5. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '388 in view of Smith '081 as applied to claim 21 above, and further in view of the Applicant's admitted prior art (hereinafter "AAPA").

Claim 24: Miyashita and Smith are discussed above, but do not explicitly teach that the substrate has at least two display areas each having a size of 50-size or greater. However, AAPA teaches that it is known in the art to deposit onto such a substrate (pg. 4, line 28 – pg. 5, line 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have deposited onto a substrate having two display areas each having a size of 50-size or greater in the method of Miyashita. One would have been motivated to do so in order to increase the production and efficiency of the process.

Claim 25-26: Miyashita and Smith do not explicitly teach that the substrate has at least three display areas or that the display area can be a size of 55-size or greater. However, AAPA teaches that it is known in the art to deposit onto such a substrate, wherein the substrate has a display area having such a size (pg. 4, line 26 – pg. 5, line 4). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used substrates having three display areas and display areas of 55-size in the method of Miyashita with a reasonable expectation of success because AAPA teaches that such substrates and display areas were operable in the method of making a PDP.

6. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '388 in view of Smith '081 as applied to claim 21 above, and further in view of Konishi (U.S. Patent No. 5,957,743).

Miyashita and Smith are discussed above. Smith teaches that the substrate can be of any size (pg. 17, lines 23-27), but does not explicitly teach that the display area can be a size of 60-size or greater. However, Konishi teaches that plasma displays can have up to a size of 60 inches (col. 1, lines 57-62). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have made a display area of 60 inches in the method of Miyashita with a reasonable expectation of success because Konishi teaches that such plasma display sizes were operable.

Response to Arguments

7. Applicant's arguments, see pg. 12-12, filed 5/19/2003, with respect to claim 22 have been fully considered and are persuasive. The 35 U.S.C. 112, first paragraph rejection of the claim has been withdrawn.

8. Applicant's arguments filed 5/19/2008 have been fully considered but they are not persuasive.

Rejections under 35 U.S.C. 103(a):

Applicant argues on pg. 13 that the Examiner acknowledged that Smith does not explicitly teach a first line and a second line forming an angle equal to or smaller than 80 degrees. However, Smith does seem to suggest that the angle can be 82.875° or less. See above discussion for details.

Applicant argues on pg. 14 that Smith is primarily concerned with crucibles having a side wall extending along a longitudinal axis, such as crucibles 12 should in Fig. 7-8. However, the main concern of Smith is to provide vapor source(s) that extend(s) beyond the width of the substrate in order to form a layer having substantially uniform thickness across the substrate

without increasing the throw distance between the substrate and the vapor source(s) (pg. 5-8). Smith exemplifies the use of a plurality of point sources, wherein a point source is placed beyond the width of the substrate on both sides (Fig. 9).

Applicant argues on pg. 14-15 that Smith does not disclose nor suggest anything about the intensity of (111) diffraction of the protection film. However, claim 21 does not require anything about the *intensity* of (111) diffraction but merely requiring that the MgO film to have a (111) alignment. Additionally, the teachings of Miyashita has been used in lieu of the teachings of Kim because Miyashita provides a better and clearer teaching of the (111) alignment of the MgO film.

Applicant argues on pg. 15-16 that the newly added claim 30 requires the angle to be greater than or equal to 60° and less than or equal to 80°. Applicant further argues that the intensity of the (111) diffraction ray does not increase even if the angle is decreased below 60° and that the position of the evaporation source would become more outer-shifted when the angle is lowered below 60° such that the size of the fabricating apparatus would become large. However, Smith reasonably suggests that the angle can be less than 82.875°, as discussed above, which fully encompasses the claimed range. Additionally, the alleged advantages of the claimed range do not yield unexpected results because one of ordinary skill in the art would have expected the fabricating apparatus to become larger with the outer-shifting of the evaporation sources.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aoki et al. (U.S. Patent No. 5,770,921) teaches the vapor deposition of MgO.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1792

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jimmy Lin/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit
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